DOCUMENT RESUME

ED 235 449 CG 016 985

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TITLE The Use of Different Rules to Allocate Reward and Punishment.
PUB DATE May 83
NOTE 8p.; Paper presented at the Annual Meeting of the Midwestern Psychological Association (55th, Chicago, IL, May 5-7, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cognitive Processes; College Students; *Decision Making; Higher Education; *Punishment; *Rewards

ABSTRACT

Much research has been conducted about how and when individuals allocate rewards, yet little research exists concerning the allocation of punishment. The process of allocating negative outcomes may be different from the decision making process for positive outcomes. To examine the decision making process for allocating rewards and punishment, psychology students (N=182) read scenarios in which an individual who either made or lost money for a group was directed to divide the group's reward or punishment (amount of money the group received or owed). The students then imagined they were the allocator, and decided how the money should be divided. Statistical analyses showed that allocators who had contributed a high number of correct or incorrect responses allocated more money to themselves than did those in the low allocator position. Allocators of punishment took away more money from themselves then reward allocators gave themselves. Subjects were more likely to choose equitable than equal allocations of outcomes in the allocation of punishments. The findings support the idea that reward and punishment allocations are not completely parallel processes. (WAS)

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The Use of Different Rules to Allocate Reward and Punishment

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To act in a fair and just manner is by no means an easy task. Pressures come to bear, both from the present situation and from an individual's past. Perceptions can become skewed and behavior altered in dramatic ways. For instance, individuals asked to allocate rewards to a group will divide the outcomes quite differently depending upon personality characteristics of the allocator (e.g. gender, values and needs), similar characteristics of the recipients, and situational variables (e.g. relative contributions of members, self-interest, and anticipated future interactions). From a sizable research endeavor on this topic we have come to know a great deal about how and when individuals will allocate rewards in various ways. Until recently, however, this important and growing body of research has systematically ignored its other, or should I say, darker half, the allocation of punishment.

Think for a moment of the task facing a supervisor of workers. He or she may often be faced with how to divide positive outcomes, such as annual raises, among subordinates. However, this person, especially in these economically difficult times, may have to decide to allocate negative outcomes instead (e.g. salary reductions). It may be that each of these decisions is governed by the same processes and mediators. If so, then the paucity of research on punishment allocation is of relatively little importance. If the two decisons are not parallel, however, it behooves us to systematically examine punishment allocation with all the rigor we have used to examine reward allocation and then to build an understanding of both processes in combination.

To my knowledge, the first attempt to compare reward and punishment allocation was presented at last year's meeting in Minneapolis (Tallmadge and Mueller, 1982). Rather than studying allocation behavior, per se, these researchers examined attitudes toward a reward and punishment allocator. Results from this study clearly indicate that attitudes toward an allocator depend a great deal on whether reward

or punishment is distributed. Briefly, reward allocators who chose to divide the group's outcome equally among its members regardless of the members' contributions were rated more positively than reward allocators who chose to divide the outcomes in an equitable manner (i.e. proportionate to contributions). In addition, the sex of the hypothetical allocator influenced the subjects' reactions. Male allocators were liked more than female allocators when they punished, while female allocators were likedmore than males when they rewarded. These results not only provide a clue about the way in which we react to men and women in assigned roles, but they also point to the fact that reward and punishment allocations are not completely parallel processes.

The study I will present today goes a step beyond the one just discussed. Here, subjects are asked to decide how they would allocate reward and punishment outcomes themselves, rather than how they rate someone else who allocates.

In the present study, 182 introductory psychology students were randomly assigned to one of eight cells in a 2 (sex of subject) X 2 (type of allocation) X 2 (level of allocator input) factorial design. Participants were given booklets describing a hypothetical experiment in which three unacquainted subjects participated in a task and either <u>received</u> money based upon the total number of correct responses made by the group, or <u>lost</u> money based on the total number of incorrect responses made by the group. One hypothetical group member, who had made a high number of correct or incorrect responses (46) or a low number (15 out of 90), was given the task of allocating the reward (a group total of $3.30) or punishment (group total loss of $3.30) among the three members. The real subjects were asked to imagine themselves as being this hypothetical allocator and to decide how the money earned or lost by the group was to be divided. To summarize the design,

male or female subjects read scenarios in which an individual who made a small or large number of responses was directed to divide the group's reward or punishment. The subjects were asked to imagine they were this allocator and, in turn, to decide how the money should be divided.

There are two related dependent measures I would like to present today; the amount allocated to oneself and the percentage of subjects who used equality or equity as an allocation rule. A 2 X 2 X 2 factorial ANOVA with sex of subject, type of allocation and level of allocator input was conducted on the allocation to self score. This analysis indicated that subjects who imagined themselves as allocators who contributed a high number of correct or incorrect responses allocated more money (gain or lose) to themselves than did those in the low allocator

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Insert Table 1 about here

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input conditions F (1,174) = 199.472, $p < .00001$. Second, subjects who imagined themselves allocators of punishment took away more money from themselves (M=118.022) than reward allocators gave to themselves (M = 108.222), F (1,174) = 4.216, $p < .05$. Finally, a significant type of allocation by level of input interaction, F (1,174) = 25.173, $p < .00001$, indicated that subjects in the high input

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Insert Table 2 about here

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punishment situation allocated the most to themselves, followed by the high input reward subjects, who in turn allocated larger amounts to themselves than did subjects in either of the low input conditions.

Let us now turn to the percentage of subjects who chose an equity as opposed to an equality allocation decision. For our purposes here, equity is defined as allocations in which outcomes to group members were ordered in the same manner as their inputs within the group. Equality is defined as allocation in which all group members received $1.10 of the group's $3.30 outcome. Overall, subjects

were more likely to choose equitable than equal allocations of outcomes (61.2% vs. 38.8%, $\chi^2 = 9.19$, $p < .001$). This effect, however, was due solely to differences in the punishment conditions. Similar to previous research, individuals in the reward conditions were slightly more likely to choose equality (55.6%) than equity (44.4%). On the other hand, individuals presented the punishment scenarios were far more likely to choose equitable (77.4%) than equal allocations (22.6%). In addition, there was a tendency for participants who read scenarios in which the allocator performed relatively well (i.e., high in reward and low in punishment) to choose equality more often (44.6%) than did participants who read scenarios in which the allocator performed poorly (32.9%) Finally, no sex differences were observed on either measure.

The present study provides strong support for the idea that reward and punishment allocation decisions are not completely parallel processes. Individuals say they will allocate more punishment than reward to themselves, overall. Level of contribution has a greater effect on allocations of punishment than on allocations of reward. Similarly, individuals clearly indicate a preference for equity in the allocation of punishment, while no such consensus is reached in a parallel reward situation.

If you will allow me a moment to regress to an age old issue for psychology and its related sciences, let me propose two possible explanations of these findings. One is based on cultural values. Sharing punishment equally causes an individual who performed well (i.e. few incorrect answers) undeserved punishment. Given that our legal system, and to some extent, social system, is designed to protect the innocent from undue punishment, one can understand the strong preference for equitable allocations. The second explanation is based, not on our cultural past, but on our evolutionary heritage. Research with a variety of species indicates that

animals are more discriminating in sensing and reacting to aversive than appetitive events. For instance, the stimulus generalization slopes are steeper for avoidance than approach, poison-aversion often occurs in one or no trials, species-specific defense reactions are well known and positive and negative contrast effects occur more readily in appetitive than aversive situations. If we share with these species a greater sensitivity and discrimination for aversive than appetitive events, and if we can propose that equity is a more discriminating allocation behavior, inherited predispositions for the behaviors demonstrated in this study should not be discarded out-of-hand.

In conclusion, more research is needed. Studies in which individuals actually decide punishment allocations are now being conducted. Cross-situational and cross-cultural studies should also be conducted to further clarify the underlying causes for the use of different rules in the allocation of reward and punishment.

Reference Notes

Tallmadge, G. & Mueller, C. Evaluation of a reward and punishment allocator. Paper presented at the Annual Meeting of the Midwestern Pyschological Association, Minneapolis, May 1983.

Table 1

Amount (Proportion of Total) Allocated to Self

Type of Allocation	
Reward	Punishment
108.222 (.328)	118.022 (.358)

Level of Input	
High	Low
148.989 (.451)	76.567 (.232)

Table 2

Amount (Proportion of Total) Allocated to Self

Input Level	Type of Allocation	
	Reward	Punishment
High	130.957 (.397)	167.022 (.506)
Low	84.455 (.256)	69.022 (.209)